Clinical Trial PRS Application

Research Title:

The effectiveness of **enhancing self-care abilities** for agriculture and aquaculture workers diagnosed with **cardiometabolic diseases**

IRB No.: **202301844B0**

English Synopsis: 2023/12/01

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English Abstract

Background: Community care emphasizes the three-tier, five-level preventive strategy and is also expected to demonstrate innovative capabilities and advocacy in promoting health equity within sustainable development and adapting to climate change. Agriculture and aquaculture form the cornerstone of a nation's important development, the livelihood of its people, and the conservation of its ecology. The southwest coastal regions of our country serve as a crucial hub for providing high-quality agricultural and fishery products to the nation, encompassing over one-third of the households and population engaged in agriculture and aquaculture nationwide. However, due to international economic and trade pressures and climate change, the number of agricultural and fishery workers (farmers and fishermen) has been gradually declining as they face reduced production capacity and income challenges. Based on our team's preliminary research findings, the prevalence and mortality rates of cardiovascular and metabolic diseases among agricultural and fishery workers in the southwest coastal regions are higher compared to the national average and advanced countries in Europe and America. Additionally, there is a higher incidence of chronic dehydration. Moreover, the overall educational level among these workers tends to be lower, the population is aging, and there is relatively inadequate access to medical resources. The literature indicates that individuals with cardiovascular and metabolic diseases can prevent health deterioration, such as myocardial infarction and stroke, by enhancing their self-care capabilities. From the perspective of aiding the sustainable development of agriculture and fisheries, how to overcome the health inequality resulting from societal determinants of health? The focus of this project is to enhance self-care capabilities effectively and address chronic dehydration by providing innovative strategies that align with their socioeconomic background. Our team's efforts in identifying, referring, and treating the high prevalence of hepatitis C virus in this region have gradually decreased the occurrence of liver cancer and other related cancers. Additionally, we have provided the Ministry of Agriculture with health needs and policy advocacy for farmers and fishermen, earning significant trust and attention from relevant authorities. This will aid us in continuing to promote interdisciplinary collaboration effectively. To date, there is a significant lack of domestic and international literature discussing and improving the health issues of farmers and fishermen. Research on community care aimed at preventing and alleviating the exacerbation of cardiovascular and metabolic diseases among this population is particularly scarce. **Research Purposes:** Therefore, based on the preliminary research

findings, this project will focus on the following investigations: (1) the self-care capabilities of farmers and fishermen with cardiovascular and metabolic diseases; (2) designing educational materials and tools tailored to the socioeconomic background of farmers and fishermen to enhance their self-care abilities; (3) validating the effectiveness of these educational materials and tools. These validations will serve as a basis for collaboration with local governments and private enterprises in academia-industry partnerships, aiming to expand the impact and diffusion of benefits. **Research Method and Objects:** This project will be based on nursing scholar Dorothea Orem's self-care theory, integrating the concept of the [life essential 8, LE8] proposed by the American Heart Association, as well as our team's recent research findings. We aim to develop educational materials and tools tailored for this group, termed [Self-Care Eight Essentials] aligning with these theories and previous research outcomes. This project is expected to be completed within three years. The first year will involve a cross-sectional descriptive study targeting farmers and fishermen in the southwest coastal regions. Collaborating with the local health bureau and regional hospitals, the study aims to identify farmers and fishermen already affected by cardiovascular and metabolic diseases. It will investigate their self-care abilities, chronic dehydration, and associated influencing factors. The estimated sample size is approximately 338 individuals. The research methods for the second and third years involve: (1) Developing a tabletop game educational tool tailored to the socioeconomic and cultural needs of farmers and fishermen, and training designated educators; (2) Employing a community-based quasi-experimental research design. Eligible participants will be cluster-randomized into intervention and control groups. Both groups will receive educational materials from the [Self-Care Eight Essentials (SC-8)]. The intervention group will additionally engage with the [SC-8 Monopoly-style board game] intervention, while the control group will follow the regular community care model. The study will assess the differences in self-care abilities, cardiovascular and metabolic markers, and inflammation indicators between the two groups. This phase anticipates an estimated sample size of around 205 individuals for each group. **Analysis:** The study will employ both descriptive and inferential statistical analyses, such as chi-square and analysis of variance (ANOVA), multivariate linear regression, logistic regression, and generalized estimating equations (GEE) to handle repeated measures data and adjust for the effects of influencing factors. **Expected Outcomes:** This study aims to present an overview of self-care abilities among farmers and fishermen with cardiovascular and metabolic diseases, identifying the distance from the ideal level and related influencing factors. It intends to establish self-care educational materials and tools tailored to the socioeconomic background of this specific population. Additionally, the study aims to transform these materials into tabletop game educational tools that possess credibility, effectiveness, and an element of entertainment. Through patents and

technology transfer, these tools are expected to serve as convenient and effective guidance instruments for health bureaus and primary healthcare units.

Keywords: cardiometabolic diseases、agriculture、aquaculture、self-care、dehydration status、inflammatory biomarkers、board game、sustainable development goals、climate change、reduced inequalities。